

ABSTRACT

A decoding apparatus that is capable of calculating of the likelihood information at high speed while suppressing increases in processing amount and in circuit scale. In this apparatus, in computations of the backward probability in a backward probability computing section (112), while one processing system calculates the backward probability β_k from the backward probability β_{k+2} , the other processing system calculates the backward probability β_{k-1} from the backward probability β_{k+1} in parallel. Specifically considering the case of $k=1$, backward probabilities β_1 and β_0 are calculated in parallel in two processing systems. The calculated backward probabilities are stored in a storage section (114) on a window basis. Further, as in the backward probability, in a forward probability computing section (113), forward probabilities α_k and α_{k+1} are calculated in parallel in two processing systems. When the forward probabilities are calculated, a likelihood computing section (115) calculates the likelihood information using the forward probabilities and backward probabilities stored in storage section 114.

FIG.2 FIG.5 FIG.6

TRAINING PERIOD

FIG.3

5 100 120 INTERLEAVER
 110 130 DECODER
 140 150 DEINTERLEAVER
 160 HARD DECISION SECTION
 170 ERROR DETECTING SECTION
 10 DECODED DATA

FIG.4

111 TRANSITION PROBABILITY COMPUTING SECTION
 112 BACKWARD PROBABILITY COMPUTING SECTION
 15 113 FORWARD PROBABILITY COMPUTING SECTION
 114 STORAGE SECTION
 115 LIKELIHOOD COMPUTING SECTION
 LIKELIHOOD INFORMATION